

**UNDERWAY OCEAN LIGHTERING
STANDARDS OF CARE
COAST OF SOUTHERN CALIFORNIA**

REV10 March 2003

DRAFT

Foreword

These Standards of Care (SOC) outline recommended operating procedures and requirements for ship-to-ship lightering of oil cargoes off the Coast of Southern California. These guidelines are intended to supplement and be used in conjunction with the current ICS/OCIMF Ship to Ship Transfer Guide (Petroleum) and the ICS/OCIMF International Safety Guide for Oil Tankers and Terminals (ISGOTT). Any conflict between these SOC and Code of Federal Regulations (CFR), CFR shall apply.

The company conducting the lightering operation will issue the masters of the Ship to be Lightered (STBL) and the lightering vessel (LV) a copy of that company's lightering guidelines, which if equal to or more stringent than the OCIMF Guidelines and this supplement, shall supercede.

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1. SUMMARY

1.1 These Standards of Care are addressed to the masters, owners and agents of vessels designated to participate in ocean lightering operations off the Coast of Southern California and to the regulatory bodies involved in overseeing such operations.

1.2 These Standards of Care contain guidelines and provides information relating to all aspects of lightering operations with specific consideration given to the circumstances present off the Coast of Southern California. They refer to approved industry guidelines in order to create a safe environment for the transfer of oil cargoes at sea. The responsible United States Coast Guard Marine Safety Office will review all lightering operations within their area of responsibility for adequacy.

1.3 The procedures incorporated in these Standards of Care are not intended to supersede the official requirements of any government body. The ultimate responsibility for the safety of the vessels and the avoidance of any accidents or oil spills must rest with the owners, masters and crews of the ships involved. All ship-to-ship transfers will be conducted in accordance with all applicable USCG regulations pertaining to such operations as found in the Code of Federal Regulations (CFR'S).

1.4 The following outlines general procedures for the lightering of crude oil tankers by medium size tankers typically in the 80,000 - 150,000 DWT range.

These Standards of Care are to be used in conjunction with and guided by the requirements set out in the current ICS/OCIMF Ship to Ship Transfer Guide (Petroleum) and the ICS/OCIMF International Safety Guide for Oil Tankers and Terminals (ISGOTT).

1.5 Before any vessel is chartered or ordered for service where it will be engaged in lightering service, the vessel and owner must pass each respective company's vetting process to ensure that the vessel meets specific requirements for equipment, main propulsion, safety, and staffing.

1.6 A designated lightering master will be assigned to each lightering operation and will be on duty on the lightering ship at all times during mooring, unmooring and cargo transfer. The lightering master is the person designated by the lightering company to coordinate and direct the entire lightering operation. When the lightering operation is expected to last more than 15 hours, two lightering masters shall be assigned. The lightering master is responsible for ensuring compliance with regulatory requirements applicable to the lightering process and with these guidelines and, if necessary, reporting to the respective Responsible Company in the event of oil spill or emergency. This reporting does not supercede the mandatory U.S. and International reporting required by the individual vessel master in the event of an oil spill or casualty.

1.7 Riggers or assistant lightering masters will assist the lightering master during mooring, unmooring and cargo transfer operations by assuring proper hose handling as

well as tending and monitoring of mooring lines under the direction of the lightering master. Riggers or assistant lightering masters shall not be ships crew.

1.8 Vessel Masters are responsible at all times for the safe operation of their vessel, including but not limited to:

Bridge and Engine Room Watches

Navigation Procedures

Cargo Transfer Procedures

Deck and Mooring Watches

Emergency Response

1.9 To ensure the safety of personnel and the integrity of the ship-to-ship transfer operation, the vessels should be supplied with special gear, which may include:

Quick release hooks or toggle pins for all mooring lines

Wire rope pendants with nylon grommets for all mooring lines

Personnel transfer basket

Sufficient walkie-talkies for both bridges and all mooring stations

Primary & secondary fenders of suitable size

Cargo hoses

2. WEATHER LIMITATIONS

2.1 It is impractical to lay down weather conditions under which transfer operations can be carried out because much will depend on the effect of the sea and swell on the fenders and the movement produced in the participating ships, taking into account their relative freeboard.

Available weather forecasts for the area, supplemented by information from facsimile weather recorders shall be obtained before the operation begins, and the Lightering Master shall receive a site-specific weather forecast from an independent weather service. All advance weather information shall be documented and filed.

Throughout the mooring operation, the visibility shall be sufficient for safe maneuvering and take into account navigation and collision avoidance requirements.

The operation should only take place if both vessel masters and lightering master(s) are satisfied that conditions are suitable for mooring and cargo transfer.

2.2 Whenever wind, waves, and swells cause undue working of mooring lines and /or fenders, or when deteriorating weather conditions adversely affect vessel motion, cargo operations will be discontinued, hoses drained, disconnected and the vessels shall be unmoored. Reference 33CFR156.320

Refer to Appendix 5 for weather and oceanographic information.

3. ADVANCE INFORMATION

3.1 An introductory message will be sent by the lightering company to the ships that will be engaged in the operation, outlining lightering procedures and an initial discharge plan. The lightering master(s) shall review the general arrangement plans for the ships engaged for mooring suitability. From this review, a mooring plan will be developed and communicated to both the lightering vessel and ship to be lightered.

3.2 Prior to arrival of the STBL, the vessel's agent will provide a 7 day, 3 day, and 1 day notification on details of the scheduled lightering operations. to the following concerned groups: USCG MSO San Diego; USCG MSO Los Angeles-Long Beach; US Customs; US Immigration; Commander Third Fleet; Fleet Area Control and Surveillance Facility; USN San Diego - Facility Watch Supervisor/OCC; SCORE Scheduler; Los Angeles-Long Beach Marine Exchange.

The master, owner or agent of each vessel to be lightered must give the U.S. Coast Guard Captain of the Port (COTP) nearest the area of lightering at least 24-hours notice prior to arrival at the lightering location as per 33 CFR 156.215.

3.3 The master or agent of the lightering vessel is responsible for conveying to the relevant authorities all necessary information regarding the lightering operations. He shall maintain contact with the USCG Captain of the Port having authority for the area where lightering is taking place.

4. EXCHANGE OF INFORMATION BETWEEN SHORE AND THE SHIPS ENGAGED IN THE LIGHTERING OPERATION

From Shore:

- 4.1** Lightering rendezvous position given in longitude and latitude.
- 4.2** Addresses, telex, telephone numbers and e-mail addresses of lightering company and/or Responsible Company representatives.
- 4.3** Details of personnel and equipment supplied by the lightering company
- 4.4** Mooring plan between vessels
- 4.5** Freeboard limitations.
- 4.6** Number and sizes of transfer hoses.

From Ship:

- 4.7** Estimated Time of Arrival (ETA's).
- 4.8** Date of expiry of current USCG TVE Letter and confirmation that the vessel is in full compliance with the requirements of the MARPOL 73/78; and SOLAS 74; also that the vessel personnel are familiar with the OCIMF Ship to Ship Transfer Guide (Petroleum).
- 4.9** Details of cargo type, quantities and characteristics.

5. OPERATIONS

5.1 When the lightering involves non-U.S. flag vessels, the lightering master must verify that the STBL and/or lightering vessel have on board a valid Tank Vessel Examination Letter (COC) issued by the USCG. No lightering can take place within USCG jurisdictional waters before such documents are presented.

5.2 Transfer location will depend on weather and sea conditions at the time. The lightering master, after consultation with the masters of the lightering vessel and the STBL, will determine which position will be used. The master of each vessel must be satisfied that the area selected is safe for the vessel.

5.3 A support vessel shall be on site during the lightering operation. The lightering master will ensure that the support vessel is advised of any change in lightering position.

5.4 Both vessels must have properly functioning IG systems. The U.S. requires not more than 5% O₂ from the IG supply and no more than 8.0% O₂ in the cargo tanks at all times. The inert condition of both vessels should be verified prior to mooring.

In addition to the above, and in order to provide for a safe and efficient operation, the masters of both the STBL and the lightering vessel will ensure that their vessels have fully operational firefighting systems, intact cargo piping and handling systems, full hull integrity, fully operational navigational gear, fully functional steering gear and a properly operating propulsion system. Deficiencies in any of these areas will result in vessel delays if sub-standard performance is identified. If temporary repairs are required or already in place, the USCG must be notified in advance. This advance notification should include what system(s) have these temporary repairs and if the flag state administration has accepted the repairs.

5.5 The lightering vessel, or support vessel shall make a navigational warning prior to the commencement of lightening operations via VHF- 16 as required in 33 CFR 156.330 (d). If the situation warrants (poor visibility, high traffic density, vessels drifting or slow steaming, etc.), the voice warning can be made at frequent intervals.

5.6. If the STBL is permitted to carry out Crude Oil Washing (COW) operations during cargo discharge, it must be understood that the lightering master is authorized to order the COW operation or concurrent discharge terminated at any time.

5.7 When in transit to a rendezvous position located in the Gulf of Santa Catalina, it is recommended that a STBL approaching from the west transit south of San Clemente Island. Because of extensive United States Naval activity in this vicinity, the Master should consider planning a route to pass between 8 and 15 nautical miles south of China Point (32-48.2N 118-25.5W) and 9 and 15 nautical miles south of Pyramid Head (32-49.2N 118-21.2W) on San Clemente Island. This route passes between two separate US Navy operating areas off this island.

6. SAFETY

6.1 *Operations must be carried out in a safe manner and oil pollution must be avoided. These items have first consideration over all other factors, and the personnel of both vessels shall be made aware of this.*

The lightering master is authorized to terminate the operation and separate the vessels should weather conditions, safety or noncompliance with the relevant procedures so dictate.

6.2 The guiding principle on Safety Checks is that both ships keep a continuous watch on safety matters.

6.3 Items on the check-off lists shall be checked, ticked and/or initialed as required, indicating that they are understood and complied with.

6.4 All personnel must report unsafe conditions or a violation of safety regulations to both masters and the lightering master for immediate corrective action.

6.5 Under no circumstances shall either vessel operate her cargo system controls until the lightering vessel is securely moored alongside and transfer hoses are connected, and the lightering master has confirmed with both vessels that they may commence cargo operations.

6.6 Both vessels will, at all times, be capable of immediate maneuvers while engaged in the lightering operations. *The main plant must not be immobilized at any time. If it becomes necessary to change engine RPMs during the operation, the Lightering Masters shall be informed immediately.*

6.7 Helicopter operations are not permitted during lightering without prior approval of the respective lightering company/Responsible Company and the lightering master. See also section 10.

6.8 Service launches and support vessels must obtain permission from the lightering master prior to approaching the two vessels during the lightening operation.

6.9 Both vessels will show the signals as laid down in the international regulations for preventing collisions at sea.

6.10 During the entire operation from the initial approach until final separation, each vessel will continuously run one radar set, usually the STBL - 10cm and LV - 3cm unless circumstances dictate otherwise.

6.11 Masters of each vessel should conduct drills prior to arrival to ensure that officers and crew are fully aware of their stations and duties in a lightering operation emergency.

6.12 Full bridge and engine room watches are to be maintained on each vessel throughout the operation.

6.13 Masters of each vessel and the lightering master shall review and discuss the detailed mooring plan and sequence of mooring and unmooring prior to engaging in said operations. To accomplish this, the lightering master must have the capability to communicate directly with each mooring station involved via approved walkie-talkies.

7. COMMUNICATIONS

- 7.1** English language is to be used throughout.
- 7.2** Pre-arrival communications per pre-arrival message format in ICS/OCIMF Guide.
- 7.3** ETA messages, per pre-arrival message.
- 7.4** During transfer operations, medium and high frequency radio telegraph and radio telephone systems must not be operated.

Communications will be by VHF and handheld walkie-talkies only. Satellite transmissions and cellular telephones are acceptable for ship-shore communications provided the use of cellular telephones is restricted to non-hazardous areas of the vessel.

Portable communication devices used during the transfer of flammable or combustible liquids must be intrinsically safe, as referenced in 33 CFR 154.560 and 33 CFR 155.785

- 7.5** Communication to be maintained between the vessels on an agreed VHF channel.
- 7.6** Communications for cargo control purposes will be maintained using handheld radios and agreed VHF channel.
- 7.7** *In the event of a communications failure or the development of an equipment failure affecting a vessel, the operation shall be suspended. The vessel affected should indicate this by sounding at least 5 short and rapid blasts on her whistle. Operations shall remain suspended until corrective action has been completed.*

8. CARGO, BALLAST & BUNKER TRANSFER PROCEDURES

8.1 It is of prime importance that all operations are conducted with due regard to safe tanker practices and in compliance with applicable laws and regulations.

8.2 Closed loading/discharging will be carried out on both vessels during oil transfer and all cargo tank lids, tank washing openings, ullage, sighting ports, and similar fittings will be closed as required for handling volatile cargoes.

8.3 Pre-transfer conference shall follow approved pre-transfer Guidelines with particular regard (but not limited) to:

- a) Rates: starting/maximum/topping off.
- b) Notice: stopping or starting.
- c) Communications: transfer to stop in the event of communications loss.
- e) Systems Integrity: no breaching of tanks allowed for any reason without Responsible Company approval.
- f) Emergency Signals: Five sharp rapid blasts on ship whistles.

8.4 The checklists shall be reviewed by the masters of both vessels and each item initialed. Prior to commencing mooring operations, both vessels shall confirm to the lightering master that the checklist has been checked and is fully understood.

8.5 Individual vessels may have lower loading rate capability than the hoses, and the cargo transfer rate should be set accordingly. Loading/discharge rates and manifold pressures are to be monitored by both vessels to ensure that the permitted rates are never exceeded. Hourly comparisons of transfer rates are to be carried out by each vessel, and any significant differences resolved.

8.6 Topping off tanks prior to completion is to be done using one cargo pump only at minimum revolution. At the final "Stop Pumping" the remaining pump is to be instantly and positively tripped.

8.7 A manifold watch is to be maintained on each vessel throughout.

8.8 During cargo transfer, a frequent (at least every 30 minutes) check should be made around each vessel to ensure that no oil leakage or spillage into the water is occurring.

9. CASUALTY/POLLUTION CONTROL

NOTICE: LEAKAGE OR SPILLAGE OVERSIDE MUST BE REPORTED IMMEDIATELY!

9.1 Only clean ballast from completely segregated ballast tanks (permanent ballast tanks) is to be discharged overboard. Ballast should be visually checked to confirm cleanliness at the beginning of discharge.

9.2 Overboard discharge of any bilges, even if through a separator is not allowed during the lightering operation.

9.3 All oil spill prevention regulations applicable to cargo transfer at terminals are also applicable to the lightering operation. Appropriate precautions shall be taken on both vessels prior to cargo transfer.

9.4 If oil escapes into the water, all cargo operations shall be stopped, the U.S. Coast Guard and the agent shall be notified immediately and the *Vessel Response Plan* activated.

9.5 USCG Notices: All pollution incidents, fires, collisions, vessels operating negligently in the lightering area, unsafe helicopter acts, and any other reportable incidents should be reported to the USCG in accordance with 33 CFR 156.220.

9.6 Communications equipment will be available onboard each vessel to ensure adequate ship/shore communications in the event of an offshore casualty/incident. Agents may want to consider the use of cellular telephones while there is offshore activity. However, depending upon the actual lightering position, the distance from land may preclude their use.

9.7 In the event of a major casualty involving the STBL or the lightering vessel, it is strongly recommended that the vessel not having the casualty and/or the support vessel remain on scene, if safe and prudent to do so, and make themselves available to the USCG, to act as a communication/command center resource (i.e. real time information, possible helicopter landing area for response team, etc.).

Either the master of the non-affected vessel or lightering master shall establish direct communications with and coordinate the communications effort with the USCG until such time that the casualty response team is in place and the vessel is released.

9.8 Also in the event of a major casualty, support vessels or other vessels engaged in lightering operations in the area, should lend assistance if deemed necessary, assuming it is safe and prudent to do so.

10. HELICOPTER OPERATIONS

10.1 No helicopter operations are permitted while vessels are moored together without the prior approval of the respective lightering company and the Responsible Company through the lightering master. When approved, the lightering master will coordinate the operations locally.

10.2 No helicopter operations are to be carried out during transfer of cargo, bunkers and/or ballasting into cargo tanks.

10.3 Helicopter operations are to be coordinated well in advance between the vessel, agent and helicopter company.

10.4 The helicopter, helicopter base or agent is to advise the vessel on departure of the helicopter from its base, providing the vessel with an expected arrival time.

10.5 All operations are to be carried out in full compliance with the ICS Guide to Helicopter/Ship Operations and requirements per Appendix 3.

10.6 All helicopters must be equipped with marine band VHF communications capability.

11. GENERAL

11.1 Tenders, supply or crew boats should be reviewed in advance to ensure their suitability for the intended use. Vessels used to transport passengers or freight must be USCG inspected.

11.2 Vessels engaged in lightering operations are to comply with the requirements of the MARPOL 73/78 Annex 5, dealing with the prevention of marine pollution by plastics and other garbage. Disposal of garbage is to be arranged through owner's agents as appropriate.

11.3 All vessels are to be equipped with approved marine sanitation devices for the treatment of sewage.

11.4 Prior to mooring, vessels should clear boilers and tubes of soot to the best extent possible. During operations when ships are moored together, tubes should not be blown. Vessel personnel should be alert to possible formation of gas clouds during calm (still air) conditions. If a dangerous concentration is detected, transfer operations shall be suspended until the situation is brought under control.

11.5 In the interest of safety, personnel not directly involved in the lightering operation are to remain aboard their respective vessels, unless otherwise agreed by the master of the vessels and the lightering master. Personnel engaging in transfer between the vessels (this includes the lightering support craft in attendance) shall wear appropriate personal protective equipment as per the lightering company.

APPENDIX 1

List of Regulatory Publications

1. International Chamber of Shipping/Oil Companies International Marine Forum *Ship Transfer Guide (Petroleum)*
2. *International Safety Guide for Oil Tanker and Terminals* (ISGOTT)
3. *International Regulations for Preventing Collisions at Sea*
4. International Chamber of Shipping, OCIMF *Prevention of Oil Spillage through Cargo Pumproom Sea valves*
5. *MARPOL 73/78 Protocol*
6. *SOLAS 74*
7. *ICS Guide to Helicopter/Ship Operations*
8. *Title 33 Code of Federal Regulations, Section 155-215*

APPENDIX 2

Lightering Area Coordinates

Lightering operations can be carried out at any safe location in international waters.

It should be noted that the actual rendezvous position for the operation is at the lightering master's discretion and may vary from the initial position previously nominated due to weather or traffic considerations. Masters are required to take local advice on arrival.

APPENDIX 3

Agents, Owners, and Masters are directed to the International Chamber of Shipping: Guide to Helicopter/Ship Operations when planning any operations involving tank vessels and helicopters.

APPENDIX 4

Official Addresses

Marine Safety Office San Diego

Commanding Officer
Marine Safety Office
2716 North Harbor Drive
San Diego, CA 92101

Phone: (619) 683-6495

Fax: (619) 683-6414

Web page: www.uscg.mil/d11/sandiego/mso/index.htm

Marine Safety Office/Group Los Angeles-Long Beach

Commanding Officer
1001 South Seaside Avenue, Bldg 20
San Pedro, CA 90731

Phone: (310) 833-1600

Fax: (310) 732-2079

Web page: www.uscg.mil/d11/MSOGRULALB/

APPENDIX 5

Weather

Southern California experiences a mild climate with a mean annual air temperature of 60°F. The mainland and islands have summers that are dry and moderately warm with relatively mild winters (3 to 6 storms per month). Over 75 percent of the annual rainfall (8 to 13 inches) on the mainland occurs from December through March.

Offshore winds are typically from the west or northwest, with annual average speeds from 6 to 10 knots. Wind speeds up to 35 knots may accompany storms or strong Santa Ana conditions. On a yearly average, 75 percent of the wind speeds exceed 6 knots, 50 percent exceed 9 knots, and 25 percent exceed 15 knots. The average wind speeds are highest in March and lowest in October, varying approximately 10 percent from the yearly average. Marine wind warnings are given 3 to 5 days per month in winter, seldom in summer. Hurricanes although rare, may be experienced during the season from June to October.

Both summer and winter fogs are common along the Southern California coast. Winter fog is generally more dense and localized, and does not extend far to sea. Dense fogs are most likely to occur in otherwise fair-weather situations in late fall or early winter, and can usually be associated with persistent daytime haze or smog in the coastal areas. Fogs typically occur at night or in the early morning, burning off in the late morning or afternoon. In January, fog may persist for three to six days with only a 2-hour break near midday.

A weather forecasting service will be used to obtain up-to-date information for specific lightering operations.

Oceanography

In southern California, 34% of the time, sea conditions are calm (i.e., wave height is less than 1 foot). Thirty-two percent of the time, the sea height exceeds 4 feet; 16 percent of the time it exceeds 6 feet; and only 5 percent of the time, it exceeds 8 feet. Swells (defined as waves generated from another area) come from the west-northwest 78 percent of the time, from the west 13 percent of the time, and from south to southwest approximately 10 percent of the time. Significant heights are commonly in the 2 to 5 foot range. Multiple swell trains are superimposed on the local sea waves and this frequently results in confused wave patterns off Southern California.

Studies have been made of the relative motion of two vessels caused by wave and swell action. Mooring and fendering equipment provided for the lightering operation must be designed to allow for the relative motion of the two vessels.

The currents offshore are generally southeast, parallel to the coastline, with the exception of December through February when a weak northwest current may be experienced about 100 miles off the coast.